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HARTCROWSER

Earth and Environmental Technologies

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J-2296-02

August 23, 1989

Mr. Mike Fish
Potlatch Corporation
Northern Woodlands Division
P.O. Box 386
Saint Maries, Idaho 83861

Re: Avery Idaho Site
Preliminary Environmental Service
Task 2 - Regulatory Assessment

Dear Mr. Fish:

This letter report presents our findings for Tasks 1 and 2 of the above referenced project. We performed this work per our signed contract dated July 19, 1989, and referenced as Hart Crowser Job J-2296-02.

Our work included:

Task 1

- o Obtain samples of waste oils from monitoring well MW-11 on-site and any other available sources; and

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- o Analyze the sample for chlorinated volatiles, cadmium, chromium, lead, and PCBs.

Task 2

- o A preliminary assessment of how recovered oily wastes may be regulated;
- o A regulatory assessment of possible disposal options for the oily wastes that may be collected from this site cleanup; and
- o A general review of other regulatory considerations.

This work was performed and this report prepared in accordance with generally accepted professional practices related to the nature of the work accomplished in the same or similar localities, at the time the services were performed. This letter report is intended for the exclusive use of Potlatch Corporation for specific application to the Avery Idaho site. This report is not meant to represent a legal opinion. No other condition, express or implied, should be understood.

RESULTS OF CHEMICAL ANALYSES

Current information from previous sampling and the Task 1 sampling and analysis indicates the oily materials found floating on the upper saturated soil horizon to be a petroleum product, probably waste oils.



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A sample of the floating petroleum product was obtained from monitoring well MW-11 during a site visit made on July 26, 1989. No other wells contained floating free phase hydrocarbons at that time. Considerable evidence was observed along the river bank of recent and continuing hydrocarbon seeps along the river bank. However, there was not sufficient flow or accumulation to sample from the seeps. The samples were analyzed using Hart Crowser's FAST mobile laboratory. Results of the chemical analyses performed are summarized on Table 1. The laboratory report is attached. Also shown for comparison purposes are the waste oil specification limits contained in 40 CFR 266 Subpart E.

Table 1 - Chemical Analysis Results and Waste Oil
Specification Limits - parts per million (ppm)

<u>Parameter</u>	<u>Concentration in Sample</u>	<u>Specification Limit</u>
Arsenic	NA	5
Cadmium	ND	2
Chromium	20	10
Lead	30	100
Total Halogens	ND	4,000
PCBs	1.4	NS

NA = Not analyzed

ND = Not detected in sample

NS = No specification in 40 CFR 266



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These results indicate that the oil is slightly out of specification due to chromium. The sample was not analyzed for arsenic due to limitations of the laboratory, however, based on past history of the site it seems unlikely that arsenic would be a significant factor. There is not a specification limit for PCBs in 40 CFR 266. However, the 1.4 ppm level in this sample is well below regulatory criteria of the Toxic Substances Control Act (TOSCA).

Although the single sample may not be totally representative of the petroleum products which may be recovered by the proposed interception trench, the results are encouraging for reuse as waste oil burned for energy. The high chrome value is still within limits for out of specification oil, or the oil could be blended down as discussed in the following section.

The railroad's past maintenance activities on this site are obviously the most likely source of these oily wastes. These activities would certainly have included oil changing, storage of heating oils and locomotive fuels, and other lubrication and petroleum product related maintenance activities.

PRELIMINARY ASSESSMENT OF RECOVERED OILY WASTES

The definition of a used oil from 40 CFR 266:



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"Used oil" means any oil that has been refined from crude oil, used, and as a result of such use, is contaminated by physical or chemical impurities.

Current information suggests that the oily material at the Avery Site is simply "used oil". Based on the sampling information, the oily waste has no detected chlorinated solvents and no significant PCB concentrations. Further, the only heavy metal of significance found was chrome, a common contaminate in used oils. Our limited sampling results show no unusual contaminate not common to used oils. Historical knowledge of the site's activities also suggests significant sources of used oils.

REGULATORY ASSESSMENT OF DISPOSAL OPTIONS

Options for the recovered oily waste vary depending on whether it is hazardous or non-hazardous waste. With limited data, the oily waste does not appear to be hazardous, except possibly for chrome. Obvious disposal options are:

- o Recycling
 - Treatment and reuse
 - Energy recovery by burning
- o Treatment
 - Biological, landfarming



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- o Disposal
 - Incineration

Preliminary screening of the above options for cost, long term liability, permanence of solution, and ease of implementation (both physically and regulatory) concluded that energy recovery by burning effective met all the criteria.

The following is a brief description of the regulatory decision tree for oily waste (used oil) burned for energy recovery.

1. Is the waste a hazardous waste under Subpart O? If the waste has a listed hazardous waste, then it must be sent to a permitted Treatment, Storage, or Disposal (TSD) facility. Our waste predates the lists, and has no known source.
2. Has the waste been mixed with a hazardous waste? If yes, it may be burned as a hazardous waste fuel, under Subpart D, 40 CFR 266. Our waste has unknown source, so this question is not applicable.
3. Does the oily waste have greater than 1000 ppm total halogens? If yes, 40 CFR 266.40 (c) presumes that the used oil has been mixed with halogenated hazardous wastes. Go to 1. above or rebut this presumption by demonstrating otherwise. Our initial sampling detected no halogens.



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4. Is the oil waste ONLY as a hazardous waste because of characteristics (e.g., heavy metals), or because of contaminants included from Small Quantity Generators (SQG)? Because we do not know the source of this oil waste, SQG's are not an issue. However, characteristics of chrome could possibly cause our waste to be designated a hazardous waste (based on our limited sampling). If this were the only reason for designation as hazardous waste, it could still be burned using Subpart E standards. If not, go to 2. above.
5. Does the oily waste meet the Specifications? The Specification in 40 CFR 266.40 include allowable levels for Arsenic, Cadmium, Chromium, Lead, Flash Point, and Total Halogens. Note our sampling results above.
 - A. Yes it does. Then the only management that is required is to keep records and analyze the material. Our waste slightly exceeds the Chrome levels, but you are allowed to blend this waste with other fuels to lower the total blended levels.
 - B. No it does not. The used oil fuel will be termed off-specification. 40 CFR 266.41 limits the types and design standards for boilers and industrial furnaces and requires that the burner notify EPA. Also recordkeeping and analysis of above are required.



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Options

The oily waste is most likely covered under 5.A. above. There is minimal requirement and the boiler at your facility can be used to burn the waste. Should the waste initially or partially be off-specification, blending with other recovered oily waste or blending with your current fuels may bring it into specification.

Should it be impossible to blend, treat, or process the oily wastes, they may still be marketed to others who may be able to blend before burning, or your boilers or industrial furnaces may meet the more limited boiler/furnace standard listed under 40 CFR 266.41 and 260.10.

OTHER REGULATORY ISSUES

Given the current analytical data, EPA is not likely to be concerned or get involved in this cleanup. Should human health or environmental damage occur, then EPA would reconsider their role. Also should the cleanup stall or slow significantly, EPA may increase their involvement. Their clearest authority to become involved would be through the use of the Clean Water Act as a consequence of seepage into the river.

An emergency cleanup under CERCLA does not appear likely. Petroleum spills are generally exempt from CERCLA. However, should high concentrations of Appendix VIII constituents be discovered, EPA has taken action.



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We appreciate the opportunity to assist you on this project. If you have any questions, please call.

Sincerely,

HART CROWSER

RICHARD D. PIERCE
Associate

ALEX TULA
Associate

RDP/AT:jal
L229601A/JOBS

Attachment:

FAST Laboratory Analytical Report

cc: Potlatch Corporation, Lewiston, Idaho,
Attn: William O. Daneworth

FAST Laboratory Analytical Report

FROM: Thomas Cammarata, Environmental Geochemist
TO: Alex Tula, Associate
DATE: August 1, 1989
SITE: Potlatch
RE: 2296-02
CC: Philip Spadaro, Sr. Project Environmental Chemist

Attached are the compiled results from field screening analysis conducted on one oil sample received on 7/26/89. Screening analysis was performed for PCBs, Chlorinated Screen, and metals (Cd, Cr, and Pb). This report contains:

- o Results for 1 oil sample
- o Results for 1 method blank
- o Results for 1 spike

The appendix to this report contains:

- o Detection limits
- o A description of the analytical method

Analytical Limitation

Analyses of the samples were performed using screening techniques. Quantitations are estimated, compounds identification are tentative.

Analytical Comments

Methodologies for analyses of PCBs, chlorinated compounds and metals in oil have been modified from those in the appendix. PCBs were extracted using a one gram sample and no methanol. For chlorinated compounds six tenths of a gram of oil was extracted into 3 ml of methanol. An aliquot of the extract was then taken into 15 ml of carbon free water. Metals were prepared using a half gram of oil into 12 ml of concentrated nitric acid.

The metals analysis data for oil does not reflect the total metal content of the oil. After sample digestion and prior to analysis, the digestate is filtered. Filtering removes material which may contain metals.

Analytical Results

Sample	Analysis	Matrix	mg/Kg
mw-11	Cd	oil	-
mw-11	Cr	oil	20
mw-11	Pb	oil	30
mw-11	PCBs	oil	1.4
mw-11	Chlorinated Volatiles	oil	-

- = below detection limits

All quantitation are estimates

All identifications are tentative

Quality Control

Sample	Analysis	mg/Kg	% Rec
Method Blank	Cd	-	
	Cr	0.48	
	Pb	1.9	
Method Blank	PCBs	-	
Method Blank	Chlorinated Volatiles	-	
mw-11	Cd		91
mw-11	Cr		109
mw-11	Pb		91
mw-11	PCBs		65

%Rec = percent spike recovery

- = below detection limits

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VOLATILES SCREEN

Volatiles are analyzed using an automated headspace system connected to a gas chromatograph. Compounds are detected with a Photon Ionization Detector (PID) and an Electrolytic Conductivity Detector (Hall or ELCD). Approximate concentrations and tentative identifications derived from this screening method should be confirmed using EPA method 601, 602, 624, 8010, 8015, 8020, or 8240.

Detection Limits

Compound	Routine Detection Limits	
	ppb in soil	water
Methylene Chloride	20	20
1,1-Dichloroethylene	20	20
1,1-Dichloroethane	20	20
Chloroform	10	10
Carbon Tetrachloride	10	10
1,2-Dichloropropane	20	20
Trichloroethylene	10	10
1,1,2-Trichloroethane	10	10
Dibromochloromethane	20	20
Tetrachloroethylene	10	10
Chlorobenzene	20	20
Trichlorofluoromethane	10	10
trans-1,2-Dichloroethylene	20	20
1,2-Dichloroethane	20	20
1,1,1-Trichloroethane	10	10
Bromodichloromethane	20	20
cis and trans-1,3-Dichloropropene	40	40
Bromoform	40	40
1,1,2,2-Tetrachloroethane	20	20
Benzene	10	10
Toluene	10	10
Ethylbenzene	10	10
Xylenes	10	10

* = Wet Weight Basis

Volatiles Screen

Sample Extraction Technique

Fifteen gms of soil or 15 ml of water are placed in a 20 ml headspace vial. Carbon free water saturated with sodium sulfate is added to soils until a set volume of headspace is left in each vial. Sodium sulfate is added to each water sample vial to assist in developing the headspace. Soil samples are shaken after capping. The vials are heated prior to analysis in an automated

headspace sampler. The headspace sampler transfers a set volume of the headspace to the chromatograph.

Chromatography Equipment

Analysis is performed using a Hewlett Packard 5890A gas chromatograph. The analytical column is a fused silica capillary column. The detectors are a Photoionization Detector (PID) and an Electrolytic Conductivity Detector (ELCD or Hall) connected in series.

Identification and Quantitation

Identification of the volatiles are made by retention time comparisons to standards run during the analytical sequence. All identifications are tentative. Quantitation of volatiles are made using a single external concentration calibration standard. All quantitations are estimates.

Quality Control

Method blank	One per day or matrix
Matrix spike	One per 20 samples, sample set or matrix
Duplicate	One per 20 samples, sample set or matrix
Target QC Values	Recovery +/- 50%
	Relative Difference <25%
Confirmation Samples	Recommend 10 to 20% samples split to confirming lab.

For PCB analysis, a two ml aliquot of the extract is transferred to a second container. One ml of concentrated sulfuric acid is added and the extract agitated. The vessel is placed in a centrifuge to settle the acid.

For pesticide analysis acid cleanup procedure is not used. Acid causes degradation of some pesticides.

Analytical Equipment

Analysis is performed using a Hewlett Packard 5890A gas chromatograph with an autosampler. The analytical column is a fused silica capillary column. The detector is an Electron Capture Detector (ECD). Sample capacity 35 samples per day.

Identification and Quantitation

Identification of PCBs are made by comparison to chromatograms of PCB standards analyzed on our GCs. All identifications are tentative. Quantitation of PCBs are made using a single concentration calibration standard for each PCB and five characteristic peaks for each standard. All quantitations are estimates.

Identification of pesticides are made by retention time comparisons to standards run during the analytical sequence. All identifications are tentative. Quantitation of volatiles are made using a single external concentration calibration standard. All quantitations are estimates.

Quality Control

Method blank	One per day or matrix
Matrix spike	One per 20 samples, sample set or matrix
Duplicate	One per 20 samples, sample set or matrix.
Target QC Values	Recovery +/- 50% Relative Difference <25%
Confirmation Samples	Recommend 10 to 20% samples split to confirming lab.

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PESTICIDE / PCBs SCREEN

Polychlorinated Biphenyls (PCBs) and Pesticides are analyzed using a simple solvent extraction and acid cleanup procedure to prepare the sample. Quantitation and identification are performed using a gas chromatograph (GC) with an Electron Capture Detector (ECD). Approximate concentrations and tentative identifications derived from this screening method should be confirmed using EPA method 608, 612, 617, 625, 8120, or 8270.

Detection Limits

Compound	Routine Detection Limits	
	ppb in soil	water
Aroclor 1016	500	4.0
Aroclor 1221	500	4.0
Aroclor 1232	500	4.0
Aroclor 1242	500	4.0
Aroclor 1248	200	2.0
Aroclor 1254	200	2.0
Aroclor 1260	200	2.0
Aroclor 1262	200	2.0
Aldrin	20	0.1
alpha-BHC	20	0.1
beta-BHC	20	0.1
gamma-BHC (Lindane)	20	0.1
delta-BHC	20	0.1
4,4'-DDD	30	0.2
4,4'-DDE	30	0.2
4,4'-DDT	30	0.2
Dieldrin	30	0.2
Endosulfan I	20	0.1
Endosulfan II	30	0.2
Endosulfan Sulfate	30	0.2
Endrin	30	0.2
Endrin Aldehyde	30	0.2
Heptachlor	20	0.1
Heptachlor Epoxide	20	0.1

* = Wet Weight Basis

Sample Extraction Technique

Five gms of soil are placed in culture tube. One half ml of methanol is added to bind water. Five mls of hexane are added to the sample. The tube is capped and agitated for fifteen minutes. The tube is then placed in a centrifuge to settle particulates and separate the phases.

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METALS

Metals analysis is performed using a quick microware digestion, if necessary, to prepare the sample. Quantitation and identification are performed using a flame atomic absorption spectrophotometer (flame AA). Approximate concentrations and tentative identifications derived from this screening method should be confirmed using EPA method 6010 or 7000.

Detection Limits

Metal	Routine Detection Limit	
	ppm in soil	ppb in water
Cadmium	1.5	15
Chromium	0.5	5
Copper	1.0	10
Lead	10	100
Nickel	1.5	15
Zinc	3.6	36

* = Wet Weight Basis

Sample Preparation

A one gm soil sample is placed in a teflon vessel with ten mls of concentrated nitric acid. The vessel is place in a microwave oven for twelve minutes. The vessel is allowed to cool and five mls of concentrated hydrogen peroxide is added. After bubbling ceases the digestate is filtered through 0.45 micron filter paper and diluted to 100 ml.

If digestion is requested for waters, fifty mls of sample is placed in a teflon vessel with three mls of concentrated nitric acid and two mls of hydrochloric acid. The vessel is placed in a microwave oven for thirty minutes. The vessel is allowed to cool, then shaken for thirty seconds and digestate filtered through 0.45 micron filter paper.

MIBK Water Extraction

An alternative method of water sample preparation is by treatment of 100 mls water with seven mls of chelating agent (diethyldithiocarbamate) followed by extraction with fifteen mls of Methyl Isobutyl Ketone (MIBK).

Spectrophotometer

Analysis of soil, water and MIBK extracted water samples is performed on a Perkin Elmer 2380 Flame Atomic Absorption Spectrophotometer. Sample capacity for flame AA performing a single metal analysis is 50 samples per day.

Identification and Quantitation

Samples are analyzed at the primary absorption frequency of the metal specific hollow cathode lamp. A single standard is analyzed at a concentration within the proven linear range of the instrument and or sufficient to give an absorbance of 0.2. All quantitations are estimates.

Quality Control

Method blank	One per day or matrix
Matrix spike	One per 20 samples, sample set or matrix
Duplicate	One per 20 samples, sample set or matrix
Target QC Values	Recovery +/- 50% Relative Difference <25%
Confirmation Samples	Recommend 10 to 20% samples split to confirming lab.